

*Quercus ellipsoidalis* - *Quercus macrocarpa* - (*Pinus banksiana*) Rocky Woodland  
[Northern Pin Oak - Bur Oak - (Jack Pine) Rocky Woodland]

COMMON NAME	Northern Pin Oak - Bur Oak - (Jack Pine) Rocky Woodland
SYNONYM	Northern Pin Oak - Bur Oak - (Jack Pine) Rocky Woodland
PHYSIOGNOMIC CLASS	Woodland (II)
PHYSIOGNOMIC SUBCLASS	Deciduous woodland (II.B)
PHYSIOGNOMIC GROUP	Cold-deciduous woodland (II.B.2)
PHYSIOGNOMIC SUBGROUP	Natural/Semi-natural (II.B.2.N)
FORMATION	Cold-deciduous woodland (II.B.2.N.a)
ALLIANCE	QUERCUS MACROCARPA - QUERCUS (ALBA, ELLIPSOIDALIS, VELUTINA) WOODLAND ALLIANCE

CLASSIFICATION CONFIDENCE LEVEL 2

USFWS WETLAND SYSTEM TERRESTRIAL

RANGE

***Voyageurs National Park***

This type occurs on ridge tops and high slopes throughout the park.

***Globally***

This association is found in northern Minnesota, Ontario, and Manitoba.

ENVIRONMENTAL DESCRIPTION

***Voyageurs National Park***

This type occurs on ridge tops and high slopes, and some dry, flat, rocky areas. Slopes range from 0-20% with variable aspects. These sites are generally dry, well drained sites with exposed bedrock typical in the more open stands and commonly covering 10-30% of the ground. In stands with more closed canopies exposed bedrock may be absent. In both cases, soils are fairly rocky, shallow loams, averaging 3-5 cm deep. Occasional cracks in the underlying bedrock results in pockets of relatively deep (15-20 cm) soil.

***Globally***

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MOST ABUNDANT SPECIES

***Voyageurs National Park***

Stratum

Tree canopy

Tall shrub

Short shrub

Forb

Fern

Graminoid

Nonvascular

Species

*Pinus banksiana*, *Pinus resinosa*, *Pinus strobus*, *Quercus ellipsoidalis*, *Populus tremuloides*

*Corylus cornuta*, *Viburnum rafinesquianum*, *Quercus ellipsoidalis*, *Amelanchier* spp., *Abies balsamea*

*Vaccinium angustifolium*, *Juniperus communis*

*Aster macrophyllus*, *Aralia nudicaulis*

*Pteridium aquilinum*

*Danthonia spicata*

*Cladina rangiferina*, *Cladina mitis*, *Cladina stellaris*, *Pleurozium schreberi*

***Globally***

Stratum

Tree canopy

Tall shrub

Short shrub

Species

*Pinus banksiana*, *Quercus ellipsoidalis*

*Corylus cornuta*, *Viburnum rafinesquianum*, *Quercus ellipsoidalis*, *Amelanchier* spp.

*Vaccinium angustifolium*, *Juniperus communis*

USGS-NPS Vegetation Mapping Program  
Voyageurs National Park

Forb	<i>Aster macrophyllus</i> , <i>Aralia nudicaulis</i>
Fern	<i>Pteridium aquilinum</i>
Graminoid	<i>Danthonia spicata</i>
Nonvascular	<i>Cladina rangiferina</i> , <i>Cladina mitis</i> , <i>Cladina stellaris</i> , <i>Pleurozium schreberi</i>

CHARACTERISTIC SPECIES

**Voyageurs National Park**

*Pinus banksiana*, *Quercus ellipsoidalis*, *Corylus cornuta*, *Viburnum rafinesquianum*, *Quercus ellipsoidalis*, *Amelanchier* spp., *Vaccinium angustifolium*, *Juniperus communis*, *Aster macrophyllus*, *Aralia nudicaulis*, *Pteridium aquilinum*, *Danthonia spicata*, *Cladina rangiferina*, *Cladina mitis*, *Cladina stellaris*, *Pleurozium schreberi*

**Globally**

Information not available.

VEGETATION DESCRIPTION

**Voyageurs National Park**

This type is characterized by either a canopy dominated by *Quercus ellipsoidalis*, with occasional *Quercus macrocarpa* or *Pinus banksiana* or with large *Pinus banksiana*, *Pinus resinosa*, or *Pinus strobus* either forming an emergent canopy over the oak trees, or mixed with the oaks. These evergreen trees may have 25-75% cover. Thus the canopy of this type varies from pure deciduous to mixed evergreen-deciduous. Stands may also vary in canopy cover from 30% ("woodland" physiognomy) to 90% ("forest" physiognomy). It is common for open bedrock ridges with oak to be found in a mosaic with more closed oak stands. In both circumstances, *Corylus cornuta*, *Viburnum rafinesquianum*, *Quercus ellipsoidalis*, and *Amelanchier* spp. are the most abundant species in the shrub layers and usually cover 20-40% of the forest floor. *Vaccinium angustifolium* is the most common dwarf-shrub and is present at low (<25%) cover. In stands with much exposed bedrock, the dwarf-shrubs *Juniperus communis*, *Prunus pumila*, *Arctostaphylos uva-ursi*, and *Comptonia peregrina* may also be present. Cover of the herbaceous layer is highly variable, ranging from 20-80%, with the most abundant herbs being *Pteridium aquilinum*, *Aster macrophyllus*, and *Aralia nudicaulis*. Species typical of bedrock outcrops and shallow soils can also be found and include *Danthonia spicata*, *Poa alsodes*, *Agropyron trachycaulum*, *Maianthemum canadense*, *Schizachne purpurascens*, and *Oryzopsis asperifolia*. The nonvascular layer can be absent or present with up to 30% cover. In the open bedrock areas this layer consists mainly of the lichens *Cladina rangiferina*, *Cladina mitis*, *Cladina stellaris*, and, to a lesser degree, the mosses *Polytrichum juniperinum*, *Polytrichum piliferum*, *Hedwigia ciliata*, and *Orthotrichum* spp. Under the canopy of oaks, the nonvascular strata consist primarily of *Pleurozium schreberi* and *Dicranum* spp.

**Globally**

This type is characterized by either a canopy dominated by *Quercus ellipsoidalis*, with occasional *Quercus macrocarpa* or *Pinus banksiana*, or with large *Pinus banksiana*, *Pinus resinosa*, or *Pinus strobus* either forming an emergent canopy over the oak trees, or mixed with the oaks. These evergreen trees may have 25-75% cover. Thus, the canopy of this type varies from pure deciduous to mixed evergreen-deciduous. Stands may also vary in canopy cover from 30% (woodland physiognomy) to 90% (forest physiognomy). It is common for open bedrock ridges with oak to be found in a mosaic with more closed oak stands. In both circumstances, *Corylus cornuta*, *Viburnum rafinesquianum*, *Quercus ellipsoidalis*, and *Amelanchier* spp. are the most abundant species in the shrub layers and usually cover 20-40% of the forest floor. *Vaccinium angustifolium* is the most common dwarf-shrub and is present at low (<25%) cover. In stands with much exposed bedrock, the dwarf-shrubs *Juniperus communis*, *Prunus pumila*, *Arctostaphylos uva-ursi*, and *Comptonia peregrina* may be present. Cover of the herbaceous layer is highly variable, ranging from 20-80%, with the most abundant herbs being *Pteridium aquilinum*, *Aster macrophyllus*, and *Aralia nudicaulis*. Species typical of bedrock outcrops and shallow soils can also be found and include *Danthonia spicata*, *Poa alsodes*, *Agropyron trachycaulum*, *Maianthemum canadense*, *Schizachne purpurascens*, and *Oryzopsis asperifolia*. The nonvascular layer can be absent or present with up to 30% cover. In the open bedrock areas this layer consists mainly of the lichens *Cladina rangiferina*, *Cladina mitis*, *Cladina stellaris*, and, to a lesser degree, the mosses *Polytrichum juniperinum*, *Polytrichum piliferum*, *Hedwigia ciliata*, and *Orthotrichum* spp. Under the canopy of oaks, the nonvascular strata consist primarily of *Pleurozium schreberi* and *Dicranum* spp.

CONSERVATION RANK G?

DATABASE CODE Cegl005246

COMMENTS

**Voyageurs National Park**

USGS-NPS Vegetation Mapping Program  
Voyageurs National Park

Diagnostic features of the type include the forest or woodland canopy consisting primarily of *Quercus ellipsoidalis*, with varying amounts of *Quercus macrocarpa*, *Pinus banksiana*, *Pinus resinosa*, and *Pinus strobus*, and a rocky substrate, with dry herbaceous, moss, and lichen species. Though there are some differences, community analysis indicates that the floristic similarities between the oak woodland and the oak forest warrant including them as open and closed version of the same type. This type lacks *Abies balsamea*, whereas the Boreal Pine Rocky Woodland (CEGL002483) usually contains it. Stands of this type on Dryweed Island appear to be distinct from the stands that occur in the rest of the park, presumably because of the differences in underlying greenstone bedrock. In the case of *Quercus macrocarpa* being dominant in the canopy, this type includes only those stands with exposed bedrock and woodland physiognomy. Forested mesic situations with *Quercus macrocarpa* are included in the Northern Bur Oak Mesic Forest.

REFERENCES

- Kurmis, V., S. L. Webb, and L. C. Merriam. 1986. Plant communities of Voyageurs National Park, Minnesota, U.S.A. Can. J. Bot. 64:531-540.
- Sims, R. A., W. D. Towill, K. A. Baldwin, P. Uhlig, and G. M. Wickware. 1997. Field guide to the forest ecosystem classification for northwestern Ontario. Ontario Ministry of Natural Resources, North West Science and Technology, Thunder Bay, ON. Field Guide FG-03. 176 p.